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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,346

03/24/2006

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EXAMINER

JACKSON, MONIQUE R

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

03/18/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/573,346	Applicant(s) KIKUCHI ET AL.	
	Examiner Monique R. Jackson	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 2-10, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/24/06 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/24/06, 10/10/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of Species f) in the reply filed on 11/30/09 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 1 and 11-15 are readable on the elected species. Claims 2-10 and 16-17 are withdrawn from consideration as being directed to non-elected species.

Drawings

2. Figures 17-19 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It has been held that the use of the term "type" extends the scope of the expression as to render it indefinite. See *Ex parte Copenhaver* 109 USPQ 118. Considering the specification fails to provide a clear definition of the term "twin crystal type",

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one having ordinary skill in the art would not be reasonably apprised of the scope of the claimed invention and could not interpret the metes and bounds of the claim so as to understand how to avoid infringement. Further, the term “high damping rubber” in Claims 11 and 14 is a relative term which renders the claim indefinite. The term "high damping" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

5. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 15 recites the limitation "wherein use is made of the damper having a structure such that an intermediate layer made of a material having an intermediate deformation stress (Young's modulus, strength) between a damping property of the damper and a damping property of the rubber is arranged to an overall outer surface of the damper" however it is unclear how the damper is being utilized in this limitation. Claim 15 depends upon Claim 11 which recites that the damper components (flakes, wire or spring) are compounded with a rubber, hence it is unclear what the term “an overall outer surface of the damper” is referring. The outer surface of the compounded material? The outer surface of the flake, wire or spring? Further, the term “the rubber” lacks clear antecedent basis given that Claim 11 recites two different rubber materials, the rubber that is compounded with the damper elements and the “high damping rubber” of the rubber sheets.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 07-242977 A

(JP'977.) JP'977 teaches a damping alloy comprising Mn as a base, and also containing 15-25% Cu, and 1-8% of at least one element among Ni, Fe, Co, Zn, Al, and Cr, wherein the alloy is suitable for reducing noise and vibrations, in the form of plate, wire, foil, fiber, etc. (Abstract.) JP'977 further teaches specific examples that read upon the instantly claimed alloy (*inherently "twin crystal type"*; Table.)

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-146498A

(JP'498.) JP'498 teaches a damping alloy made of a Mn-Cu-Ni-Fe alloy (*inherently "twin crystal type"*) in the shape of a spring for vibrators (Abstract.)

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Krumme et al (USPN 5,842,312.) Krumme et al teach twin crystal shape memory alloys that can be used for damping of any structures such as building structures, and nanostructures that are subject to any type of vibration such as acoustic, seismic, blast, impact, wave and wind; wherein the shape memory alloy may be NiTi, CuZnAl, CuAlNi and FeMnSi (Abstract; Col. 8, lines 34-43; Col. 9, lines 4-43.) Krumme et al teach that the shape memory alloy can be chosen to achieve various characteristics and can have any form, such as a flattened or round wire, based upon the specific application of use (Col. 5-6; Col. 8, lines 43-67; Col. 9, lines 43-Col. 10, line 61.)

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10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Davoodi et al (USPN 6,170,202.) Davoodi et al teach a building system using shape memory alloy members to provide damping properties to make the building or other structure more resistant to earthquake damage, wherein the shape memory alloy is a twin crystal alloy such as Ni-Ti alloy, in the form of a spring (Entire document, particularly Abstract; Col. 2-Col. 51; Col. 6, lines 8-21.)

11. Claim 1 is rejected under 35 U.S.C. 102(a) or (e) as being anticipated by Schneider (USPN 6,989,197.) Schneider teaches a polymer composite comprising a resin matrix interlayer reinforced with shape memory alloy (SMA) particles, particularly Ni-Ti particles having an austenitic or martensitic structure, wherein the particles may be in the shape of cylinders (*reads upon claimed "wire" shape*), ovals, spheres, or virtually any other shape (Entire document; particularly Abstract; Col. 2, lines 23-58; Col. 5, lines 29-52; Figures 2-4.) Schneider teaches that the matrix may be any thermoplastic or thermosetting polymer matrix material or any other suitable resin (Col. 3, lines 65-Col. 4, line 3.) Schneider teaches that the SMA-reinforced layer can be utilized in various composite structures including structures comprising one or more metal layers and/or fiber-reinforced layers (Col. 5, lines 52-65; Figures 5-6.) Schneider teaches that other SMAs may be utilized as the reinforcing particles including Ni-Ti-Cu and Cu-Al-Ni-Mn (Col. 6, lines 9-14.) Schneider further teaches that the composite provides improved vibration damping properties in various applications (Col. 6.)

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-081499A (JP'199) in view of Schneider. JP'199 teaches a quake-absorbing laminated rubber structure comprising rubber sheets and metal plates alternately arranged between outer plies wherein a through-hole is provided in the center of the structure and comprises an elastic material that deforms smoothly during an earthquake preventing the collapse of the through-hole and a building comprising the structure (Abstract.) JP'199 teaches that the elastic material is preferably formed from a polyurethane elastomer and may comprise various additives such as plasticizers, bulking agents and fillers like heavy calcium carbonate, clay, talc and carbon (Paragraph 0012, Examples.) JP'199 fails to teach that the quake-absorbing structure comprises damping alloy elements as instantly claimed compounded into the polyurethane elastomer resin and/or in the rubber sheets. However, as discussed in detail above, Schneider teaches that improved damping properties can be obtained by incorporating shape memory alloy materials into thermoplastic or thermosetting resins, wherein the shape memory alloys include twin crystal Ni-Ti alloys, Ni-Ti-Cu alloys and Cu-Al-Ni-Mn alloys, and may be provided in various shapes including rod, oval, sphere or virtually any other shape wherein a flake shape would have been obvious to one having ordinary skill in the art at the time of the invention given that metal alloy particles are conventionally provided as spheres or flakes. Hence, one having ordinary skill in the art at the time of the invention would have been motivated to incorporate the shape memory alloy particles as taught by Schneider in the polyurethane elastomer and/or the rubber sheets in the invention taught by JP'199 to provided enhanced vibration damping properties.

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14. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukahori et al (USPN 4,899,323) in view of Schneider, JP'977, JP'498, Krumme et al or Davoodi et al.

Fukahori et al teach an anti-seismic laminate comprising the basic structure of the instantly claimed laminate, specifically a plurality of rigid hard plates such as metal plates, laminated alternately with soft elastic or rubber sheets, between outer flanges; wherein the rubber sheets are made from a damping material comprising a viscoelastic rubber and a filler in an amount of preferably 30-250 parts by weight for 100 parts by weight of rubber (Entire document; particularly Col.4-Col. 5, line 2; Figures.) Fukahori et al teach that the filler material may be a flaky inorganic filler, a granular or powdery filler such as metal powder, or a fibrous material such as metal fibers used for rubbers and resins (Col. 4, lines 60-69.) Fukahori et al also teach that the damper material may be utilized in a cylindrical space formed at the core of the anti-seismic rubber bearing structure (Col. 12; Figures.) Fukahori et al do not teach that the flaky inorganic filler particles or metal fibers of the damper material are formed from the twin crystal metal alloys as instantly claimed. However, Schneider, JP'977, JP'498, Krumme et al and Davoodi et al all teach that the claimed twin crystal metal alloys provide excellent damping properties and are suitable for use in vibration damping applications, wherein Schneider particularly teaches the incorporation of the claimed metal alloys in resin materials to provide improved damping properties. Hence, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize the twin crystal metal alloys taught by the secondary references as the flaky or fibrous filler in the invention taught by Fukahori et al to provide enhanced damping properties to the anti-seismic laminate taught by Fukahori et al.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508.

The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/
Primary Examiner, Art Unit 1794
March 14, 2010